Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

A99.9
F7622Uf
C 2

USDA United States Department of Agriculture

Forest Service

Northeastern Research Station

Resource Bulletin NE-143

West Virginia Timber Products Output: 1994

Richard H. Widmann
Eric H. Wharton
Edward C. Murriner

USDA
NAT'L AGRIC LIBRARY
2000 NOV 22 P 1:22
CURRENT SERIAL RECORDS
ACQ/SERIALS BRANCH

Abstract

The total industrial harvest in West Virginia in 1994 was more than 165 million cubic feet, a 38-percent increase since 1987. Sawlogs accounted for 75 percent of the total and pulpwood accounted for 18 percent. During this 7-year period, sawlog production increased by 44 percent to 812 million board feet. Pulpwood production reached 348,000 cords of roundwood and 334,000 cord equivalents of residue chips. Oak species accounted for 52 percent of total sawlog production, and yellow-poplar accounted for 24 percent of the combined sawlog and veneer log harvest.

The Authors

RICHARD H. WIDMANN and ERIC H. WHARTON are foresters with the Northeastern Research Station's Forest Inventory and Analysis unit at Radnor, Pennsylvania.

EDWARD C. MURRINER is an assistant administrative forester with the West Virginia Bureau of Commerce's Division of Forestry at Charleston, West Virginia.

Manuscript received for publication 12 May 1998

Published by:

USDA FOREST SERVICE
5 RADNOR CORP CTR SUITE 200
RADNOR PA 19087-4585

October 1998

For additional copies:

USDA Forest Service
Publications Distribution
359 Main Road
Delaware, OH 43015
Fax: (740)368-0152

Visit our homepage at: **http:www.fs.fed.us/ne**

Highlights

◆ In 1994, the West Virginia harvest of wood for industrial uses climbed to 156 million cubic feet, a 38-percent increase over 1987 production.

◆ During the 7-year period ending in 1994, sawlog production rose by 44 percent to 812 million board feet.

◆ Only 22 of the 177 sawmills in the state processed 55 percent of the 1994 sawlog harvest.

◆ Oak species accounted for 52 percent of total sawlog production.

◆ Yellow-poplar accounted for 24 percent of the combined sawlog and veneer log harvest.

◆ Pulpwood production in 1994 totaled 348,000 cords of roundwood and 334,000 cord equivalents of residue chips.

◆ On a per-acre basis, the harvest averaged 14.3 cubic feet of wood per acre of timberland, or 34 percent of the average net growth per acre.

Study Method

Information from this study conducted jointly with the West Virginia Division of Forestry updates similar studies conducted by the Northeastern Research Station and the West Virginia Division of Forestry in 1965, 1974, 1979 and 1987 (Bones and Glover 1977; Widmann and Murriner 1990).[1] These studies assess the quantities and species of wood being harvested for industrial use in West Virginia. The data in this report were obtained by canvassing all primary wood-product manufactures that used logs, bolts, and pulp chips harvested in West Virginia in 1994. Wood harvested for industrial or domestic fuel was not included in this study. Firms were initially contacted by a mailed questionnaire. West Virginia Division of Forestry personnel contacted nonrespondent mill owners in the state by telephone or personal visit. Nonresponding out-of-state mills were contacted by telephone only.

In compiling the tables in this report, quantities of sawlogs reported by mills were converted to the International ¼-inch log rule. Conversion factors were based on the average log diameter and log length reported by the mills. A conversion factor was calculated for each mill.

Historical Trends in Lumber Production

The timber industry flourished in West Virginia from 1879 to 1920. During this boom period, an estimated 29 billion board feet of lumber were produced from West Virginia's forests (Clarkson 1964). The peak year of production was 1909 when 1,524 sawmills in the state produced 1.5 billion board feet of lumber (Steer 1948). This is equivalent to 230 million cubic feet of wood. About 60 percent of this total was from hardwood species. In addition to logs processed at sawmills timber was harvested for rough hewn railroad ties, mineprops, fencing, and other products. Although the amount of timber cut for these uses is not known, it is believed to be significant.

The vast amounts of quality timber in the original forest made this boom possible. But by 1920, the original forest was depleted except for a few isolated areas of small acreage (Clarkson 1964). The timber industry collapsed quickly as virgin stands became scarce. Lumber production reached a low during 1933 when 185 million board feet (28 million cubic feet) were produced. Production picked up again during World War II and then leveled off, averaging about 425 million board feet per year through 1979 (65 million cubic feet). In 1979, 406 million board feet of logs were cut for timber[1] with a total harvest equivalent of 89.2 million cubic feet.

[1]Nevel, Robert L., Jr.; Murriner, Edward C. 1979. West Virginia timber industries—periodic assessment of timber output. Office report on file at Northeastern Research Station, Forest Inventory and Analysis, 5 Radnor Corporate Center, Suite 200, Radnor, PA 19087-4585.

Total Harvest

The West Virginia harvest of wood for industrial uses, including sawlogs, veneer logs, pulpwood, and other miscellaneous products climbed to 165 million cubic feet in 1994 (Fig. 1, Table 1), a 38-percent increase over 1987 production and 25 percent above the 1965 level (Table 2). These increased levels of harvesting coincide with a maturing of the forest and timber inventories rising to levels not seen since the original forests were harvested. On a per-acre basis, the harvest averaged 14.3 cubic feet of wood per acre of timberland or 34 percent of the average annual net growth per acre. This comparison of growth to removals is based on estimates of growth per acre on average annual net growth from forest inventory data between 1975 and 1989 (DiGiovanni 1990) and on removals for 1994 when this mill canvass was carried out.

Most of the wood harvested in the state is delivered to sawmills. In 1994, 75 percent of the harvest was in sawlogs, 18 percent in pulpwood, 4 percent in veneer logs, and about 3 percent in other products (Fig. 2).

The Northeastern Region continued to lead the other two regions (Fig. 3, Table 3). The 65 million cubic feet harvested here represent 39 percent of the state total. The Southern Region was second with 37 percent of the harvest (61 million cubic feet) and the Northwestern Region ranked third with 24 percent of the total (39 million cubic feet). However, the Northwestern Region showed the largest increase since 1987, rising by 68 percent. Harvesting in the Southern and Northeastern Regions increased by 36 and 26 percent, respectively.

The 1994 harvest represented roughly 72 percent of the peak production reached in 1909 when West Virginia was a national leader in lumber production. This estimate considers only wood cut for lumber; if the amount of wood cut for other products in 1909 were known, it would lower this proportion somewhat. Because of improvements in logging practices, modern-day harvesting has much less impact on the forest than the practices used in the early part of the century. Today's harvesting methods destroy or damage fewer trees and harvested stands are left in better condition than in the past. Better utilization also produces more wood products from each tree harvested. These improvements create far less waste and stands are returned to a productive condition sooner than in the past. Also, improved techniques that have minimized wildfires have allowed harvested stands to naturally regenerate faster. By contrast, repeated fires at the turn of the century inhibited the growth of young trees.

Sawlog Harvest

Sawlog production in 1994 totaled 811.6 million board feet (Table 4), a 44 percent increase (248.8 million board feet) over 1987 production. This was the highest level of production since production spiked shortly after World War II. Higher prices for quality hardwood lumber and a maturing timber resource have spurred mills to expand capacity.

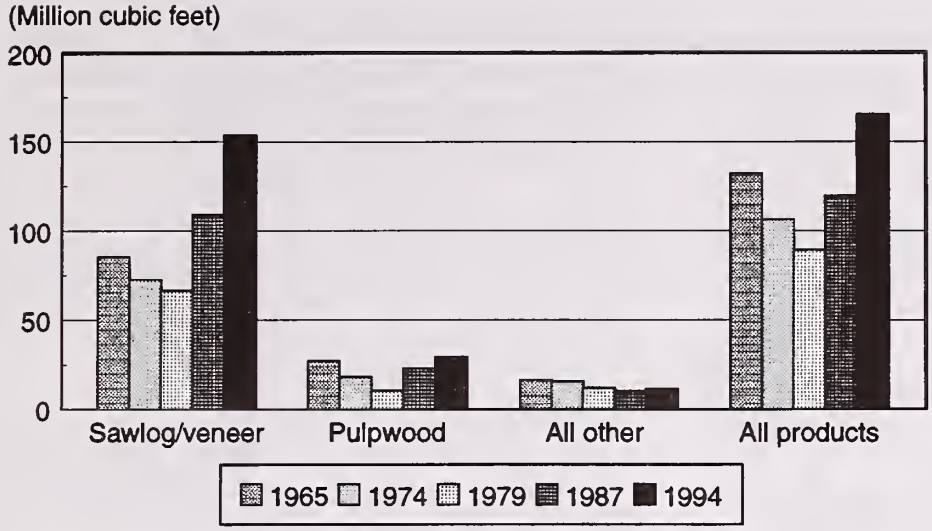


Figure 1.—Trends in West Virginia timber harvest for selected years, by product.

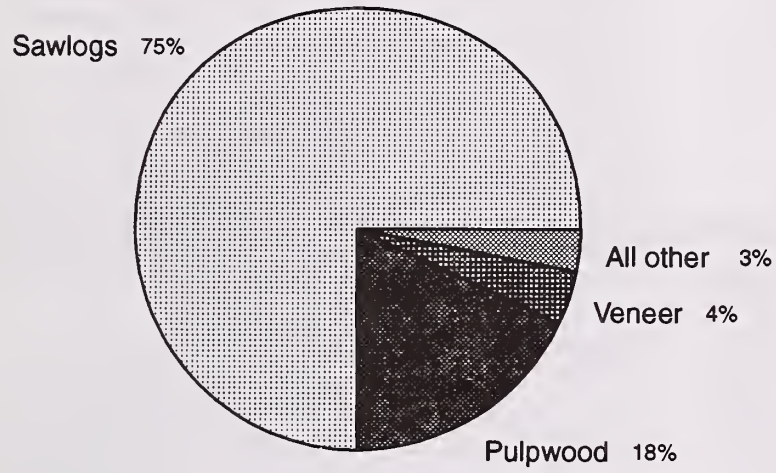


Figure 2.—West Virginia timber harvest, 1994 (other products include cooperage, mine timbers, and miscellaneous).

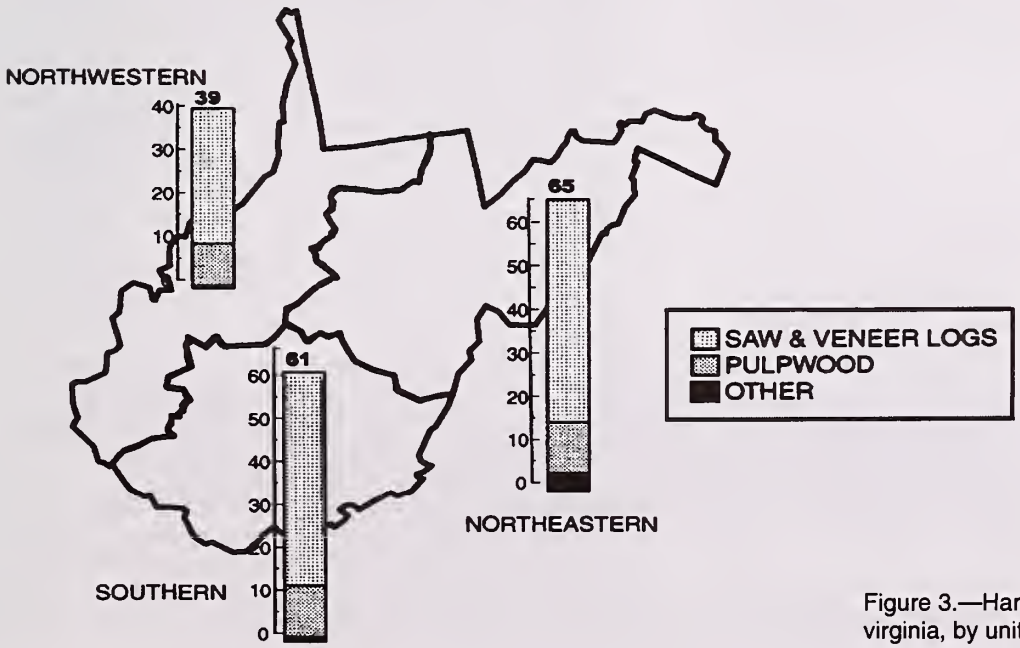


Figure 3.—Harvest of industrial wood in West virginia, by unit and major products, 1994.

The harvest of yellow-poplar sawlogs increased by 48 percent, from 112.9 million board feet in 1987 to 167.4 million board feet in 1994. Yellow-poplar was the leading species harvested and when sawlogs and veneer logs are combined this species accounted for 24 percent of the combined sawlog/veneer log harvest. The use of yellow-poplar lumber has increased for a variety of uses, for example, molding and furniture. It often competes with softwoods such as spruce and pine.

Although the sawlog harvest comprises a wide range of species, the oaks are the predominant species group (Fig. 4), accounting for 52 percent of total log production. The 419 million board feet of oak harvested represented a 66-percent increase over the 1987 oak harvest when oaks accounted for 49 percent of the harvest.

West Virginia is a net exporter of sawlogs. In 1994, 115.1 million board feet of sawlogs were shipped to neighboring states while 29.2 million board feet were brought into the state (Tables 4-5). Most of these exports went to mills in Ohio (72.6 million) and Virginia (25.4 million). Exports accounted for 14 percent of total sawlog production. The imports were primarily from Kentucky (9.8 million), Virginia (9.1 million), and Maryland (6.9 million).

Number of Mills

The increase in sawmilling capacity in West Virginia between 1987 and 1994 is reflected by the increase in the number and size of sawmills operating in the state (Table 9). During this period the trend toward larger mills revealed in the 1987 mill canvass (Widmann 1990) continued. The number of mills receiving more than 5 million board feet annually rose from 30 mills in 1987 to 51 mills in 1994. Of these 51 mills, 22 received more than 10 million board feet. These 22 mills processed 55 percent of the 1994 sawlog harvest. Previous studies revealed a steady decline in the number of small mills— those receiving less than 1 million board feet of logs per year. This 1994 study shows a halt in this downward trend in the numbers of small mills, which numbered 266 in 1965, 53 in 1987, and 64 in 1994.

Pulpwood Production

Pulpwood is produced by harvesting roundwood from the forest and by using manufacturing residues. At most harvesting operations, wood that does not meet sawlog requirements is sold as pulpwood. This lower quality wood is from the upper stem portion of sawlog-size trees and from stems that are too small in diameter or that have too many defects for sawlog use. Pulpmills also receive pulpchips produced at sawmills from slabs and edgings that are generated when sawlogs are milled into lumber. Much of this wood used by pulpmills otherwise would be difficult to market. In 1994, 51 percent of the pulpwood production in West Virginia was from roundwood and 49 percent was from manufacturing residues (Fig. 5).

Because West Virginia has no pulpmills, all of the pulpwood produced is shipped to mills in neighboring states. High transportation costs to distant mills have resulted in limited markets for pulpwood in some parts of the state. This is especially true for some counties in southwestern West Virginia. A plan to build a pulpmill on the state's western border would have improved markets for pulpwood but that plan was canceled.

Pulpwood production in 1994 totaled 682,400 cords (Table 9), a 22-percent increase over the 1987 level. During this period, roundwood production increased by 28 percent and pulpwood from manufacturing residues rose by 17 percent. Roundwood and residue production have followed an upward trend over the last decade (Fig. 6).

The 1994 harvest of roundwood for pulp amounted to 348,300 cords in 1994; 81 percent was in hardwood species and 19 percent was in softwood species. Softwoods always have accounted for a small portion of West Virginia's pulpwood harvest.

High production of hardwood lumber in West Virginia has resulted in more manufacturing residues being generated. The sale of residue chips provides an additional source of income for sawmills. During 1994, sawmills and other primary processors of logs in the state sold the equivalent of 334,000 cords of wood residues to pulpmills (Table 9). In recent years, pulpmills have relied more heavily on residues as a source of wood. Both the amount of residues used for pulp and their contribution to total pulpwood production have increased. Manufacturing residues accounted for nearly half of the pulpwood produced in 1994.

Veneer Log Production

In 1994, veneer log production represented nearly 4 percent of West Virginia's total harvest. These logs account for a small portion of the total harvest but they represent a larger share of total value. The value of veneer logs that are used to make veneers for furniture exteriors can be three or more times greater than that of medium-grade sawlogs. The preferred species for use in furniture are black cherry, white oak, and northern red oak. Buyers for the limited supply of these logs compete across the Northeastern States. Yellow-poplar veneer logs are used for lower value products such as core material in plywood; these logs are fairly common in West Virginia. West Virginia exported 5.7 million board feet of veneer logs to other states (Table 10). Most exported logs went to mills in Kentucky and North Carolina. They received 3.1 and 1.9 million board feet, respectively. Veneer log production is difficult to track because many logs are bought and sold through a network of buyers and sellers and shipped to many mills, some of which are overseas. Data for logs shipped out of state should be considered as a minimum amount because it is likely that some shipments are missing from this study.

The completion of a new veneer mill in the state helped boost West Virginia's veneer log production from 7.6 million board feet in 1987 to 42.7 million board feet in 1994 (Table 11). Yellow-poplar is the primary species used by this mill to produce core material for plywood. The volume of species

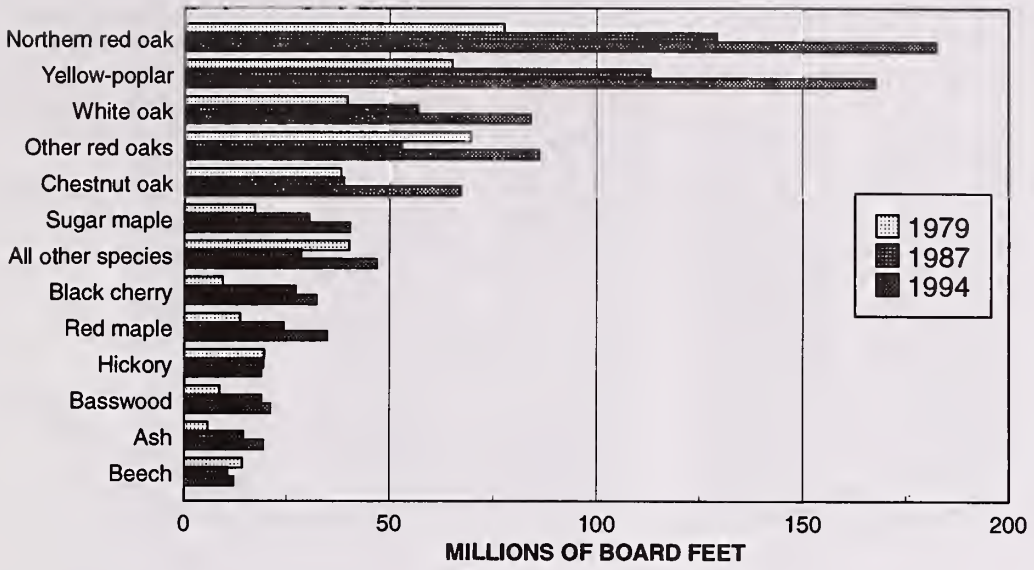


Figure 4.—West Virginia sawlog harvests, by species, 1979, 1987, and 1994.

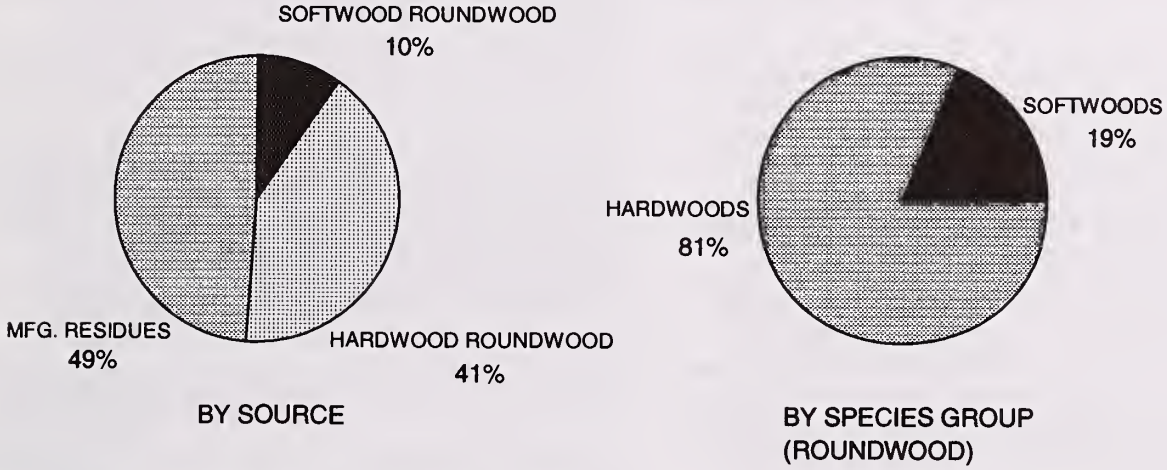


Figure 5.—West Virginia pulpwood production in 1994.

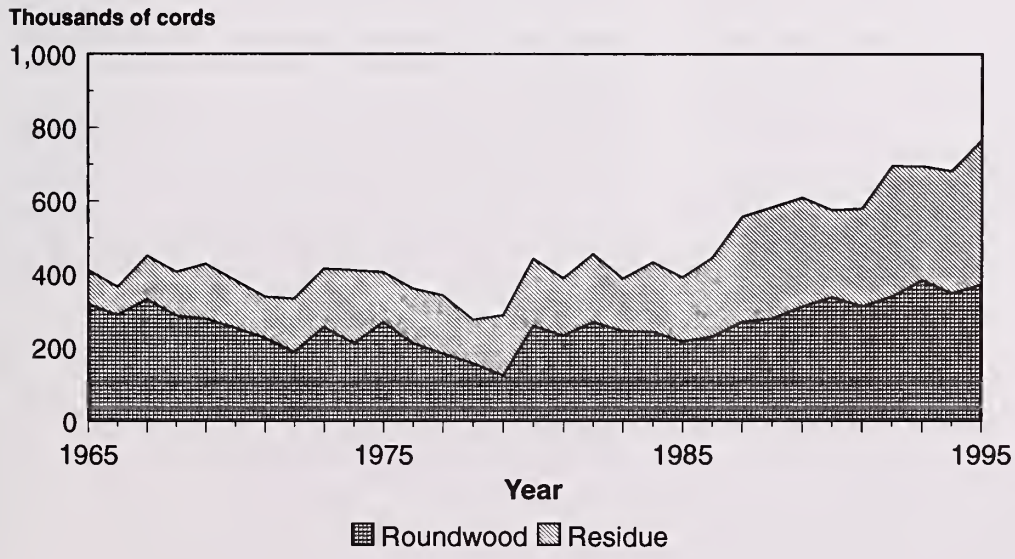


Figure 6.—Total production of pulpwood production in West Virginia, roundwood and manufacturing residues, 1968-1995.

other than yellow-poplar increased from 4.3 million board feet in 1987 to 7.7 million board feet in 1994; nearly 75 percent of these higher value species were shipped to out-of-state mills.

Increase in Composite Products

West Virginia mill capacity for processing logs was being expanded at the time this report was being prepared. In 1994, three plants were under construction or were about to open that would produce wood-composite products. These mills slice or chip wood into small pieces and then recombine them with adhesives to produce building products such as oriented-strand board, waferboard, and engineered lumber. Although only minor amounts of wood were used by one mill in 1994 to produce test runs of its product, future demand for logs by these mill will be significant. These mills have the potential to create markets for logs that previously had been underutilized because of their species or grade. They also will compete for wood that now is shipped out of state for use as pulpwood. Forest inventories have shown that there is an abundant supply of wood to meet the needs of these mills.

One of the major keys to the practice of good forestry is new markets for low-grade wood. The opening of these new markets for low-grade wood and underutilized species makes it easier to carry out forest management. Such markets reduce waste in logging and milling and create opportunities to carry out thinnings designed to improve the composition, quality, and growth of residual stands.

Other Products

A small quantity of logs and bolts are consumed by a variety of primary processors for products such as fencing, cooperage, and mine timbers. In 1994, these industries used 5.1 million cubic feet of wood, a decrease of 43 percent since the 1987 study.

Mill Residue

Primary wood manufacturers produced more than 66 million cubic feet of residues in the process of converting roundwood into lumber and other wood products (Fig. 7, Table 12). Three types of residues are produced: bark, coarse residues (mostly slabs and edgings), and fine residues (sawdust). The major use for bark is for agricultural products such as mulch and livestock bedding. Other uses for bark include industrial fuel and charcoal. Course residues were primarily chipped (82 percent) and sold to out-of-state pulpmills.

Slabs and edgings also are sold or donated by sawmills to local residents for domestic fuel. The largest use of fine residues is for industrial fuel. Pulpmills and many of the large sawmills burn sawdust as boiler fuel to run their plants and dry kilns. Sawdust also is used by the charcoal industry.

The 13 percent of the residues that went unused offer some opportunities for increased use, but most of this is bark and sawdust produced in small quantities across the state.

Harvesting Influences Composition of the Forest

In the long run, the harvest of a species tends to be related to its abundance in the resource base. Inventory data show that in 1995, oaks represented only 33 percent of the growing-stock volume and 38 percent of the board-foot volume of standing timber. The higher percentage of oak in the harvest and considerably lower portion of oak in the resource base point to an imbalance between supply and use. The current mix of species being harvested places heavy cutting pressure on the oaks and encourages the growth of species such as red maple, sugar maple, cucumbertree, and ash. The long-term prospects for sustaining the harvest of oak at present levels are doubtful.

Besides being under heavy harvesting pressure, oaks are not regenerating adequately to sustain current levels. Older trees that are harvested or that die from natural causes are not being replaced by sufficient numbers of younger trees. Although the volume of oaks growing in the forest has continued to increase, all of the increase in volume has occurred on the larger diameter trees. There have been decreases in the numbers of oaks in the low-diameter classes. Unpublished data from an interim survey of West Virginia's forests in 1995 revealed decreases in the numbers of oaks in the 6-, 8-, 10- and 12-inch dbh classes. At the same time, there have been large increases in the volume of red and sugar maple, particularly in the lower diameter classes. These species are replacing oaks on many harvested sites in the state.

Cutting is only one factor that influences changes in species composition. In a maturing forest such as West Virginia's, it should be expected that the more shade-tolerant species like the maples would increase at the expense of more shade-intolerant species like the oaks. The disproportionately high harvesting rate for oaks has accelerated this natural succession toward more shade-tolerant species. Insects such as the gypsy moth also have caused higher mortality among the oaks. Because of these factors, it is expected that future harvesting in West Virginia will shift to more available species.

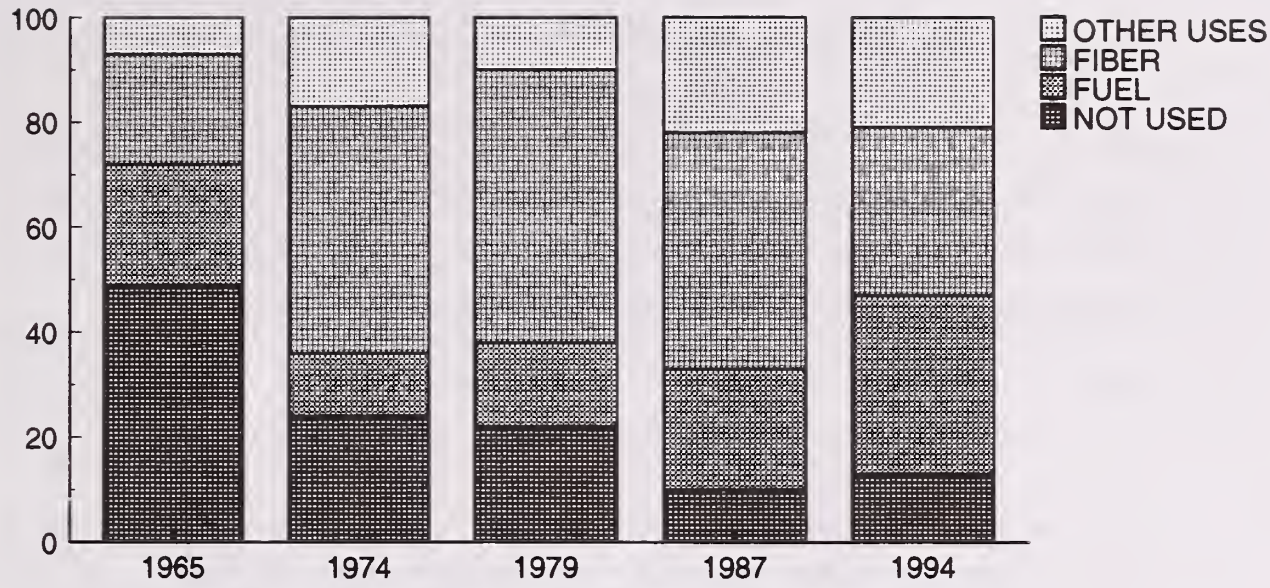


Figure 7.—Trends in manufacturing residue use in West virginia, 1965, 1974, 1979, 1987, and 1994.

Literature Cited

Bones, James T.; Glover, Ralph P., Jr. 1977. **The timber industries of West Virginia.** Resour. Bull. NE-47. Upper Darby, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 16 p.

Clarkson, Roy B. 1964. **Tumult on the mountains.** Parsons, WV: Mclain Printing Co. 410 p.

DiGiovanni, Dawn M. 1990. **Forest statistics for West Virginia—1975 and 1989.** Resour. Bull. NE-114. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 172 p.

Steer, Henry B. 1948. **Lumber production in the United States, 1799-1946.** Misc. Publ. 669. Washington, DC: U.S. Department of Agriculture, Forest Service, Division of Forest Economics. 233 p.

Widmann, Richard H.; Murriner, Edward C. 1990. **West Virginia timber products output—1987.** Resour. Bull. NE-115. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 20 p.

Appendix

Index to Tables

Table No. Page

1. Volume of industrial roundwood, by product harvested, West Virginia, 1994 9
2. Change in timber products output, West Virginia, 1965-1994 9
3. Industrial timber harvest, by geographic unit, softwoods and hardwoods, and products, West Virginia, 1994 10
4. Production of sawlogs, by species and destination of shipments, West Virginia, 1994 10
5. Consumption of sawlogs and source of shipments, West Virginia, 1994 11
6. Production of sawlogs, by species and geographic unit, West Virginia, 1994 12
7. Sawlog production, by geographic unit, West Virginia, 1965-1994 12
8. Number of operating sawmills and annual production class, West Virginia, 1965, 1974, 1979, 1987, 1994 13
9. Production of pulpwood, roundwood, and manufacturing residues, West Virginia, 1968-1995 13
10. Veneer log production, by species and consuming state, West Virginia, 1994 14
11. Veneer log production and receipts, West Virginia, for selected years: 1963-1987 and 1994 15
12. Production and distribution of hardwood manufacturing residues, by type of residue and use, West Virginia, 1994 15

Conversion Factors

Softwood logs: Mbf (International ¼- inch log rule) = 149.1 ft^3

Hardwood logs: Mbf (International ¼-inch log rule) = 153.0 ft^3

On average, 1 board foot Doyle rule = 1.38 board foot International ¼- inch rule (based on an average log diameter of 12.61 inches and average length of 11.4 feet, as reported by mills in this study)

Pulpwood: 1 standard cord = 85 ft^3 = 2.41 m^3

1 green ton aspen-yellow-poplar = 0.5263 cords

1 green ton oak-hickory = 0.3571 cords

1 green ton other hardwoods = 0.3846 cords

Table 1.—Volume of industrial roundwood, by product harvested, West Virginia, 1994[a]

Product	Standard unit	Softwood	Hardwood	All species
		Volume in standard units		
Sawlogs	M Board feet[b]	17,214	794,403	811,617
Pulpwood	Standard cords	65,400	282,900	348,300
Veneer logs	M Board feet[b]	0	42,748	42,748
Misc. products[d]	M cubic feet	233	4,847	5,080
		Volume in cubic feet (thousands)		
Sawlogs		2,633	121,516	124,149
Pulpwood		5,559	24,046	29,605
Veneer logs		0	6,538	6,538
Misc. products		234	4,846	5,080
Total		8,426	156,946	165,372
		Volume in cubic meters (thousands)		
Sawlogs		74.6	3,441.0	3,515.5
Pulpwood		157.4	680.9	838.3
Veneer logs		0.0	185.1	185.1
Misc. products		6.6	137.2	143.9
Total		238.6	4,444.2	4,682.8

[a]Does not include fuelwood or removals that were not manufactured into industrial products.
[b]International 1/4-inch log rule; M= thousand.
[c]Rough-wood basis equivalent to 85 cubic feet of solid wood.
[d]Includes fencing, mine timbers, and other miscellaneous products.

Table 2.—Change in timber products output, West Virginia, 1965-1994

	Volume in cubic feet (millions)[a]				
	1965	1974	1979	1987[b]	1994
			Softwoods		
Sawlogs	3.6	2.9	3.0	1.0	2.6
Pulpwood	8.7	4.3	2.5	5.9	5.6
Veneer logs	—	—	—	—	—
Miscellaneous	0.9	4.4	1.9	3.0	0.2
Total	13.2	11.6	7.4	9.9	8.4
			Hardwoods		
Sawlogs	80.9	69.3	62.1	85.1	121.5
Pulpwood	18.4	13.9	8.2	17.2	24.0
Veneer logs	0.8	0.5	1.3	1.2	6.5
Miscellaneous	18.7	11.3	10.2	6.2	4.9
Total	118.8	95.0	81.8	109.7	156.9
			All species		
Sawlogs	84.5	72.2	65.1	86.1	124.1
Pulpwood	27.1	18.2	10.7	23.1	29.6
Veneer logs	0.8	0.5	1.3	1.2	6.5
Miscellaneous	19.6	15.7	12.1	9.2	5.1
Total	132.0	106.6	89.2	119.6	165.3

[a]International 1/4-inch log rule.
[b]1987 sawlog and veneer totals have been adjusted and now are based on the same board-foot to cubic-foot conversion factor as 1994.

Table 3.—Industrial timber harvest,[a] by geographic unit, softwoods and hardwoods, and products, West Virginia, 1994

Geographic unit/ species group	(Thousands of cubic feet) Sawlogs and veneer logs	Pulpwood	Other products	All products
Northeastern				
Softwood	519	1,896	175	2,590
Hardwood	50,284	8,713	3,381	62,378
Total	50,803	10,608	3,556	64,967
Southern				
Softwood	761	238	17	1,016
Hardwood	48,626	10,379	968	59,973
Total	49,387	10,617	985	60,989
Northwestern				
Softwood	1,352	3,426	42	4,820
Hardwood	29,145	4,956	498	34,599
Total	30,497	8,381	540	39,418
All Regions				
Softwood	2,632	5,559	234	8,425
Hardwood	128,055	24,047	4,847	156,949
Total	130,687	29,606	5,081	165,374

[a]Does not include fuelwood or removals that were not manufactured into industrial products.

Table 4.—Production of sawlogs, by species and destination of shipments, West Virginia, 1994

Species	(Thousand board feet)[a] Total retained in state	Exported to: Maryland	North Carolina	Ohio	Pennsylvania	Virginia	Total export	Total production
Total softwoods	7,010	—	—	10,103	29	72	10,204	17,214
Ash	14,635	44	—	3,868	288	401	4,601	19,236
Basswood	20,968	—	—	—	—	—	20,968	
Beech	11,774	—	—	205	—	—	205	11,979
Sweet birch	3,196	—	—	—	—	—	—	3,196
Yellow birch	1,592	—	—	—	—	—	—	1,592
Black cherry	27,292	474	—	2,167	723	1,591	4,955	32,247
Cucumbertree	4,182	—	—	—	—	—	—	4,182
Elm	821	—	—	—	—	—	—	821
Blackgum	2,098	—	—	—	—	—	—	2,098
Hickory	18,225	—	—	389	—	37	426	18,651
Red maple	32,372	22	—	1,131	—	1,273	2,426	34,798
Sugar maple	37,042	36	—	1,459	722	1,130	3,347	40,389
White oak	67,526	34	—	11,818	1,847	2,659	16,358	83,884
Chestnut oak	57,938	34	—	5,889	1,805	1,292	9,020	66,958
Northern red oak	147,524	309	—	15,001	8,808	10,520	34,638	182,162
Other red oaks	78,259	—	—	7,688	4	—	7,692	85,951
Black walnut	2,469	—	—	290	75	306	671	3,140
Yellow-poplar	151,428	68	124	9,472	1,607	4,737	16,008	167,436
Other hardwoods	10,157	3	—	3,158	—	1,398	4,559	14,716
All hardwoods	689,498	1,024	124	62,535	15,879	25,344	104,906	794,404
Total, all species	696,508	1,024	124	72,638	15,908	25,416	115,110	811,618

[a]International 1/4-inch log rule.

Table 5.—Consumption of sawlogs and source of shipments, West Virginia, 1994

Species	Harvested and used within West Virginia	(Thousand board feet)[a] Imported from: Kentucky	Maryland	Ohio	Pennsylvania	Virginia	Total imports	Total production
Total softwoods	7,010	—	208	—	104	555	867	7,877
Ash	14,635	108	108	165	279	329	989	15,624
Basswood	20,968	452	105	—	26	152	735	21,703
Beech	11,774	—	—	—	1	192	193	11,967
Sweet birch	3,196	—	—	—	—	63	63	3,259
Yellow birch	1,592	—	—	—	—	40	40	1,632
Black cherry	27,292	43	364	—	118	362	887	28,179
Cucumbertree	4,182	63	1	—	4	56	124	4,306
Elm	821	—	—	—	9	4	13	834
Blackgum	2,098	—	—	—	—	46	46	2,144
Hickory	18,225	568	55	—	27	278	928	19,153
Red maple	32,372	122	215	—	52	388	777	33,149
Sugar maple	37,042	260	504	—	216	593	1,573	38,615
White oak	67,526	679	1,091	—	555	1,196	3,521	71,047
Chestnut oak	57,938	403	1,078	—	554	946	2,981	60,919
Northern red oak	147,524	3,047	1,583	—	603	1,347	6,580	154,104
Other red oaks	78,259	1,395	962	—	456	1,032	3,845	82,104
Black walnut	2,469	98	2	—	13	66	179	2,648
Yellow-poplar	151,428	2,517	588	—	298	1,074	4,477	155,905
Other hardwoods	10,157	13	—	—	8	374	395	10,552
All hardwoods	689,498	9,768	6,656	165	3,219	8,538	28,346	717,844
Total, all species	696,508	9,768	6,864	165	3,323	9,093	29,213	725,721

[a]International 1/4-inch log rule.

Table 6.—Production of sawlogs by species and geographic unit, West Virginia, 1994

Species	(Thousand board feet)[a] Northeastern unit	Southern unit	Northwestern unit	Total production
Total softwoods	3,396	4,976	8,842	17,214
Ash	7,787	5,730	5,718	19,235
Basswood	8,223	9,689	3,056	20,968
Beech	6,771	2,624	2,584	11,979
Sweet birch	2,123	692	381	3,196
Yellow birch	967	379	246	1,592
Black cherry	20,033	5,976	6,238	32,247
Cucumbertree	2,021	1,564	598	4,183
Elm	623	154	44	821
Blackgum	767	881	450	2,098
Hickory	7,892	6,668	4,091	18,651
Red maple	18,108	11,414	5,276	34,798
Sugar maple	18,682	15,824	5,883	40,389
White oak	29,403	28,819	25,662	83,884
Chestnut oak	29,635	21,601	15,721	66,957
Northern red oak	70,499	73,998	37,665	182,162
Other red oaks	23,735	35,195	27,021	85,951
Black walnut	1,579	631	930	3,140
Yellow-poplar	65,317	63,698	38,420	167,435
Other hardwoods	5,728	4,397	4,592	14,717
All hardwoods	319,893	289,934	184,576	794,403
Total, all species	323,289	294,910	193,418	811,617

[a]International 1/4-inch log rule.

Table 7.—Sawlog production, by geographic unit, West Virginia, 1965-1994

Geographic unit	1965	1974	1979	1987	1994
	Production (Millions of board feet)				
Northeastern	201.3	186.1	187.6	239.2	323.3
Southern	227.4	199.4	168.7	228.9	294.9
Northwestern	62.0	78.2	61.0	94.7	193.4
Total	490.7	463.7	417.3	562.8	811.6
	Consumption (Millions of board feet)				
Northeastern	203.0	194.8	172.4	236.3	357.6
Southern	227.4	187.9	154.7	210.0	256.5
Northwestern	55.0	64.6	41.9	88.7	111.6
Total	485.4	447.3	369.0	535.0	725.7

[a]International 1/4-inch log rule.

Table 8.—Number of operating sawmills and annual production class West Virginia, 1965, 1974, 1979, 1987, 1994

Year	More than 1 million	Less than 1 million	Total
1965	94	172	266
1974	90	137	227
1979	77	124	201
1987	111[a]	53	164
1994	113[b]	64	177

[a]30 mills more than 5 million board feet.
[b]51 mills more than 5 million board feet and 22 of these more than 10 million board feet.

Table 9 .—Production of pulpwood, roundwood, and manufacturing residues, West Virginia, 1968-1995

	(In thousands of rough cords)		
Year	From roundwood	From manufacturing residues	Total
1965	319.3	92.4	411.7
1966	289.9	76.4	366.3
1967	333.3	117.4	450.7
1968	288.1	119.4	407.5
1969	279.7	149.4	429.1
5-year total	**1,510.3**	**555.0**	**2,065.3**
1970	225.8	129.3	355.1
1971	228.2	112.2	340.4
1972	190.3	145.0	335.3
1973	258.2	158.9	417.1
1974	213.6	198.5	412.1
5-year total	**1,116.1**	**743.9**	**1,860.0**
1975	272.0	135.7	407.7
1976	213.2	149.1	362.3
1977	185.9	158.1	344.0
1978	158.5	119.3	277.8
1979	126.2	164.3	290.5
5-year total	**955.8**	**726.5**	**1,682.3**
1980	261.0	186.3	447.3
1981	235.2	156.3	391.5
1982	271.5	186.1	457.6
1983	246.6	142.8	389.4
1984	244.5	189.7	434.2
5-year total	**1,258.8**	**861.2**	**2,120.0**
1985	218.1	174.5	392.6
1986	231.0	216.4	447.4
1987	272.0	286.4	558.4
1988	279.8	434.9	714.7
1989	313.2	296.7	609.9
5-year total	**1,314.1**	**1,408.9**	**2,723.0**
1990	339.4	237.1	576.5
1991	313.0	267.2	580.2
1992	340.4	355.6	696.0
1993	385.2	310.3	695.5
1994	348.3	334.1	682.4
1995	372.3	393.0	757.7
5-year total	**2,098.6**	**1,897.3**	**3,988.3**

Table 10.—Veneer log production, by species and consuming state, West Virginia, 1994

Species	Harvested and used within West Virginia	Indiana	Kentucky	North Carolina	Pennsylvania	Virginia	Total exported	Total production
	(Thousand board feet)[a]							
Total softwoods	—	—	—	—	—	—	—	
Ash	127	6	252	—	—	26	284	411
Basswood	—	—	—	—	—	—	—	—
Beech	—	—	—	—	—	—	—	—
weet birch	—	—	—	—	—	—	—	—
Yellow birch	—	—	—	—	—	—	—	—
Black cherry	645	10	252	—	—	146	408	1,053
Cucumbertree	—	—	—	—	—	—	—	—
Elm	1	—	—	—	—	—	—	1
Blackgum	—	—	—	—	—	—	—	—
Hickory	—	—	—	—	—	—	—	—
Red maple	—	—	—	—	—	—	—	—
Sugar maple	18	—	—	—	64	—	64	82
White oak	257	10	2,510	912	126	7	3,565	3,822
Chestnut oak	—	—	—	—	—	1	1	1
Northern red oak	973	10	—	843	250	22	1,125	2,098
Other red oaks	—	—	—	—	—	—	—	
Black walnut	1	—	124	—	—	—	124	125
Yellow-poplar	35,046	—	—	—	—	—	—	35,046
Other hardwoods	—	—	108	—	—	108	108	
All hardwoods	37,068	36	3,138	1,863	440	202	5,679	42,747
Total, all species	37,068	36	3,138	1,863	440	202	5,679	42,747

[a]International 1/4-inch log rule.

Table 11.—Veneer log production and receipts, West Virginia, for selected years: 1963-87 and 1994

	(Million board feet)[a]	
Year	Production	Receipts
1963	7.0	6.3
1965	4.6	6.4
1968	7.9	8.7
1972	4.3	6.1
1974	3.2	4.3
1976	3.6	3.9
1979	8.5	23.0
1980	7.5	23.4
1984	3.9	[b]
1987	7.6	[b]
1994	42.7	44.7

[a]International 1/4-inch log rule.
[b]Data withheld to avoid disclosure for individual mill.

Table 12.—Production and distribution of hardwood manufacturing residues by type of residue and use, West Virginia, 1994

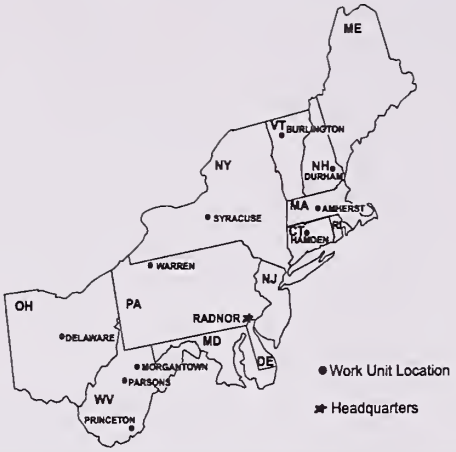
	(In thousands of cubic feet)			
	Type of residue			
Disposition	Bark	Coarse	Fine	All types
Fiber	70	20307	1199	21576
Industrial fuel	2451	775	16025	19251
Domestic fuel	153	1631	1223	3007
Agriculture	8800	13	2800	11613
Other	18	1185	1087	2290
Total used	11492	23911	22334	57737
Unused	3104	2757	3180	9041
All	14596	26668	25514	66778

Widmann, Richard H.; Wharton, Eric H.; Murriner, Edward C. **West Virginia timber products output: 1994.** Resour. Bull. NE-143. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 15 p.

The total industrial harvest in West Virginia in 1994 was more than 165 million cubic feet, a 38-percent increase since 1987. Sawlogs accounted for 75 percent of the total and pulpwood accounted for 28 percent. During this 7-year period, sawlog production increased by 44 percent to 812 million board feet. Pulpwood production reached 348,000 cords of roundwood and 334,000 cords equivalents of residue chips. Oak species accounted for 52 percent of total sawlog production, and yellow-poplar accounted for 24 percent of the combined sawlog veneer log harvest.

Keywords: Forest products, pulpwood, sawlogs

Printed on Recycled Paper



Headquarters of the Northeastern Research Station is in Radnor, Pennsylvania. Field laboratories are maintained at:

Amherst, Massachusetts, in cooperation with the University of Massachusetts

Burlington, Vermont, in cooperation with the University of Vermont

Delaware, Ohio

Durham, New Hampshire, in cooperation with the University of New Hampshire

Hamden, Connecticut, in cooperation with Yale University

Morgantown, West Virginia, in cooperation with West Virginia University

Parsons, West Virginia

Princeton, West Virginia

Syracuse, New York, in cooperation with the State University of New York, College of Environmental Sciences and Forestry at Syracuse University

Warren, Pennsylvania

The U. S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at (202)720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, Washington, DC 20250-9410, or call (202)720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

"Caring for the Land and Serving People Through Research"